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C L A I M S

1. Poly(styrene-butadiene-styrene) polymer having a high vinyl content in the butadiene block comprising in combination
- i) a polystyrene content (PSC) within a range of 15-20% by weight
- 5 ii) a coupling efficiency (CE) of 50-80%
- iii) a step I molecular weight (MW) between 9,000 and 10,000 kg/mol
- iv) a vinyl content between about 20-45%, and
- v) a MFR of equal to or greater than 10.
- 10 2. The polymer according to claim 1 wherein the polystyrene content (PSC) is within a range of 16-19% by weight, preferably 16-18% by weight.
3. The polymer according to claim 1 wherein the coupling efficiency is within a range of 60-75%, preferably 65-70%.
- 15 4. The polymer according to claim 1 wherein the vinyl content amounts to 25-40% preferably 30-35 by weight.
5. Hot melt adhesive composition comprising:
- a) a poly(styrene-butadiene-styrene) polymer having a high vinyl content in the butadiene block according to any one of
- 20 claims 1 to 4;
- b) a tackifying resin;
- c) optionally a plasticizer; and
- d) an anti-oxidant.
6. The hot melt adhesive composition according to claim 5
- 25 characterized in that said polymer has the following characteristics
- | | |
|-------------------------------|------------------|
| Polystyrene (PSC) content (%) | 16-19 |
| CE (%) | 60-75 |
| Step I (MW) (kg/mol) | 9,400-9,600, and |
| 30 Vinyl (%) | 25-40. |

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7. The hot melt adhesive composition according to claim 6 characterized in that said polymer has the following characteristics

	Polystyrene (PSC) content (%)	about 19
5	CE (%)	about 70
	Step I (MW) (kg/mol)	about 9,500
	Vinyl (%)	about 30.

8. The hot melt adhesive composition according to any one of claims 5 to 7 having

- 10 a) hot melt viscosity at 170°C during 24 hours lower than 100 Pa.S (ASTM D3236-78)
- b) Rolling back tack: 1-5 cm (ASTM D3121-73)
- c) Flap test, 500 g weight: higher than 120 minutes (test method herein described)
- 15 d) HP 40°C, 1 kg weight: higher than 50 minutes (ASTM D3654-82).

9. The hot melt adhesive composition according to any one of claims 5 to 9 wherein the amount of tackifier in the composition comprises 50 to 200 parts by weight, preferably

20 100 to 150 parts.

10. The hot melt adhesive composition according to any one of claims 5 to 9 wherein the amount of plasticizer in the composition is up to 100 parts by weight, preferably 5 to 75 parts by weight.

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